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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/817,627

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Guy F. Hudson

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05/09/2007

Mark W. Roberts, Ph.D.  
DORSEY & WHITNEY LLP  
Suite 3400  
1420 Fifth Avenue  
Seattle, WA 98101

EXAMINER

MENON, KRISHNAN S

ART UNIT

PAPER NUMBER

1723

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DELIVERY MODE

05/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/817,627	<b>Applicant(s)</b> HUDSON, GUY F.	
	<b>Examiner</b> Krishnan S. Menon	<b>Art Unit</b> 1723	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION:

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 23 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 65-67, 69, 75-90 and 92-100 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 65-67, 69, 75-90 and 92-100 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

Claims 65-67, 69, 75-90 and 92-100 are pending as amended 5/4/07

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 65-67, 69, 75-90 and 92-100 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 70-100 of copending Application No. 10/817,495. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '495 application recites the limitations recited in the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 65-67, 69, 75-90, and 92-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (US 6,077,437) in view of Chiu et al (US 6,106,714).

The newly added limitation in the preamble of claim 65, "system including a planarization slurry used in planarization of microelectronic ..." would not make slurry as part of the structure of the apparatus. The claims are for an apparatus to filter slurry, and slurry is therefore a process fluid.

Hayashi-437 teaches a prior art system (which is Hayashi, US 5,647,989) for manufacturing a planarizing slurry (figure 6 and 7) having first reservoir and line (the recycle of spent slurry) with a first filter to remove particle size greater than 0.5  $\mu\text{m}$  (column 2 lines 35-45), and then mixing a slurry from a second line (fresh slurry – 126- figure 7), mixer (130), volume controls as claimed (126a, 117a, and 125), and dispenser (117; 117a). The particles sizes recited as greater than 0.3, 0.8 and 1.0 microns is taught in column 2 lines 35-45. Also please note that reservoirs in such filter lines are inherent or implied.

Hayashi-437 also teaches that the use of 0.5-micron membrane for the fine filtration is unnecessary, that larger pore size can be used, and shows a comparative

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study of the pore size in table 1, which includes pore size ranging from 0.5 micron to 150 microns.

Instant claims differ from the teaching of Hayashi-437 in the second line having a second filter that removes particles of size greater than 0.05 or 0.15  $\mu\text{m}$ . Applicant provides the second filter to manufacture the slurry having a bimodal distribution of particles. Bimodal distribution of particles is taught by Hayashi-437 – see figure 3a, 3b and 4, and column 8 lines 11-18, column 12 lines 41-46 and column 13 lines 1-9. Use of a filter in a slurry feed line to remove impurities is “conventional” (or known in the art), irrespective of the stream being fresh or recycle – see the Chiu reference, column 1 lines 37-51. It would be obvious to one of ordinary skill in the art at the time of invention to provide a filter to remove undesirable material from the second feed stream of the slurry as well, as is conventional in the art, in the teaching of Hayashi. The actual sizing of the filter is optimizable, depending on the impurities to be removed from the stream, as taught by Hayashi-437 (see column 11 lines 45 – column 12 line 23).

2. Claims 65-67, 69, 75-90 and 92-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki et al (US 6,352,469) in view of Roberts et al (US 6,039,649).

Miyazaki teaches multiple feed lines of slurry for a CMP system – see figure 9 in particular, and column 13 line 60 – column 14 line 17. The reference also teaches the possibility of different slurries in column 14 lines 11-17. However, the reference does not specifically teach feeding two different slurries at the same time.

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Roberts teaches polishing slurry compositions having two different particle size distributions, with size difference at least 10% - see the figures, column 3 lines 5-52, and column 1 lines 25-61. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Roberts for polishing slurry compositions as taught by Roberts because of the advantages taught by Roberts. It would be obvious to one of ordinary skill in the art at the time of invention to have the slurries filtered for obtaining the particle size control as taught by Miyazaki, using separate feed streams. The sizing of the filters is optimizable: Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). An in line mixer for mixing the streams would be inherent, when combining the teachings of Roberts and Miyazaki.

### ***Response to Arguments***

Applicant's arguments filed 12/26/06 have been fully considered but they are not persuasive.

In response to the applicant's argument:

"The Examiner cited Chiu for disclosing using a filter with fresh slurry. However, there is no indication in the Chiu reference that the slurry is fresh, and the examiner bears the burden of proving that a prior art reference relied upon for a 103 rejection discloses the

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limitation either expressly, implicitly, or inherently. MPEP 2112. Clearly, the Chiu reference does not explicitly disclose that the slurry being filtered is fresh slurry."

This argument is not commensurate in scope with the rejection. Chiu reference was used, as has been explained before in the prior actions, for its teaching of the state of the art, that one of ordinary skill knows about the use of filters in slurry feed lines. There is not need for the examiner to show that the slurry used in Chiu is fresh for establishing a prima facie case, because Chiu is not being used for a showing of fresh slurry. Moreover, the claims are for an apparatus for filtering a slurry, and all that is needed is a showing of capability of the apparatus to filter a slurry. In addition, the entire argument is flawed in that it assumes that the Chiu reference teaches only recycled slurry: there is no evidence to support this argument.

Argument that neither Hayashi nor Chiu teach filtering *two separate slurries with different sized particles in each respective slurry* and then combine, that the references teach filtering a single slurry with bimodal distribution and then combining with an unfiltered single slurry having bimodal distribution: this argument is not persuasive because the claim is for an apparatus, and the apparatus of the teaching of the references is capable of filtering two separate slurries as claimed. Argument that the claims now, as amended, positively recite slurry as part of the apparatus is also not convincing, because the apparatus claimed is a slurry filter, even if the preamble says "system including planarizing slurry".

Applicant's claims are also for an apparatus; the slurry being filtered is only a process material. "Expressions relating the apparatus to contents thereof during an

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intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). MPEP 2115. Argument that the slurry is part of the apparatus, and the material that is worked on is the microelectronic substrate is not persuasive. The apparatus described in the specification and claimed is a filtration apparatus for filtering a slurry.

With respect to Miyazaki and Roberts, Miyazaki teaches the multiple lines, with reservoir. Roberts teaches about having bimodal distribution. Miyazaki teaches about switching lines while in continuous operation, and also about having different slurry feeds. Thus Miyazaki teaches filtering all slurry feeds, and, therefore, the combination of references teach two slurry feeds, filtered and then mixed, as shown in the rejection. Argument that Miyazaki does not teach a second feed line as recited in the claims is not persuasive; if Miyazaki taught that, it would be a 102 reference.

Argument that if Miyazaki does not disclose the limitation, then Roberts must suggest it is not persuasive. The suggestion does not have to be explicitly present in a reference. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re*



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*Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Miyazaki teaches filtering different slurry feeds. Roberts teaches having bimodal distribution by combining the particles – see column 1, lines 50-61.

Applicant also does not have any secondary evidence to overcome the prima facie case.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'K S Menon', with a date '5/7/07' written to its right.

Krishnan S Menon  
Primary Examiner  
Art Unit 1723